

Attorney's Docket No. 43197.240748

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re: Clyne et al.  
Appl. No.: To be assigned  
Filed: Concurrently herewith  
For: SANDWICH MATERIAL

October 31, 2001

Commissioner for Patents  
Washington, DC 20231

**PRELIMINARY AMENDMENT**

Dear Sir:

Please amend the above-identified application as follows:

**In the Specification:**

Please revise the second full paragraph beginning on page 4, line 33 to read as follows:

A suitable, commercially available core is manufactured by Bekaert, a Belgian company, under the trade name BEKIPOR®.

Please revise the first full paragraph beginning on page 7, line 5 to read as follows:

Two stainless steel plates of length 80 mm, width 20 mm and thickness 200  $\mu\text{m}$ , were coated with a chromium/nickel braze and were then positioned either side of a fibrous stainless steel core of the same length and width and having a thickness of 800  $\mu\text{m}$ , supplied by Bekaert under the product name BEKIPOR® NPF 90071-000. The resulting sandwich construction was clamped and heated to about 1000°C. in order to bond the metal plates to the core. The areal density of the resulting product was 5.0 kg/m<sup>2</sup>, and the core fibre volume fraction was 0.19.

In the Claims:

Please amend Claims 1, 3, 5-11 and 13-19 as follows:

1. (Amended) A sandwich material comprising two metal plates which are affixed to and separated by a fibrous core, the core comprising a three-dimensional porous network comprising metal fibres, wherein substantially all of the fibres are inclined at an acute angle ( $\theta$ ) to the plates.
3. (Amended) A sandwich material according to claim 1, wherein the metal plates and the metal fibres comprise metals selected from the group consisting of stainless steel, steel, aluminium and titanium.
5. (Amended) A sandwich material according to claim 1, wherein the plates are affixed to the fibrous core by means of a braze.
6. (Amended) A sandwich material according to claim 1, wherein the plates are affixed to the fibrous core by means of an adhesive.
7. (Amended) A sandwich material according to claim 1, wherein the fibres in the core are randomly oriented.
8. (Amended) A sandwich material according to claim 1, wherein  $\theta$  is less than  $60^\circ$ .
9. (Amended) A sandwich material according to claim 1, wherein the average diameter of the fibres is less than  $500\text{ }\mu\text{m}$ .
10. (Amended) A sandwich material according to claim 1, wherein the total thickness of the material is 0.5mm - 1 cm.

11. (Amended) A sandwich material according to claim 1, wherein the fibres occupy 5-50 volume% of the core.

13. (Amended) A sandwich material according to claim 1, wherein the core additionally comprises non-metallic fibres.

14. (Amended) A sandwich material according to claim 1, wherein the fibrous core additionally comprises a polymer matrix.

15. (Amended) A process for the preparation of a sandwich material as defined in claim 1, comprising the step of affixing two metal plates to either side of a fibrous core.

16. (Amended) A welded material comprising a sandwich material as defined in claim 1 welded to a substrate.

17. (Amended) A vehicle part comprising a sandwich material as defined in claim 1.

18. (Amended) A vehicle part according to claim 17, which is selected from the group consisting of spoilers, panels and roofs.

19. (Amended) A vehicle comprising a vehicle part as defined in claim 17.

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REMARKS

Applicants have amended the specification on pages 4 and 7, and have amended Claims 1, 3, 5-11 and 13-19. These amendments are non-limiting and have been made for reasons of clarification to place the application in better form for examination on the merits.

Respectfully submitted,

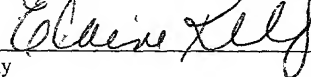


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Elaine Kelly

**Version With Markings to Show Changes Made:**

**In the Specification:**

Please revise the second full paragraph beginning on page 4, line 33 to read as follows:

A suitable, commercially available core is manufactured by Bekaert, a Belgian company, under the trade name [Bekipor] BEKIPOR®.

Please revise the first full paragraph beginning on page 7, line 5 to read as follows:

Two stainless steel plates of length 80 mm, width 20 mm and thickness 200  $\mu\text{m}$ , were coated with a chromium/nickel braze and were then positioned either side of a fibrous stainless steel core of the same length and width and having a thickness of 800  $\mu\text{m}$ , supplied by Bekaert under the product name [Bekipor] BEKIPOR® NPF 90071-000. The resulting sandwich construction was clamped and heated to about 1000°C. in order to bond the metal plates to the core. The areal density of the resulting product was 5.0  $\text{kg/m}^2$ , and the core fibre volume fraction was 0.19.

**In the Claims:**

Please amend Claims 1, 3, 5-11 and 13-18 as follows:

1. (Amended) A sandwich material comprising two metal plates which are affixed to and separated by a fibrous core, [characterised in that] the core [comprises] comprising a three-dimensional porous network comprising metal fibres, wherein substantially all of the fibres are inclined at an acute angle ( $\theta$ ) to the plates.

3. (Amended) A sandwich material according to claim 1 [or claim 2], wherein the metal plates and the metal fibres comprise metals [independently] selected from the group consisting of stainless steel, steel, aluminium and titanium.

5. (Amended) A sandwich material according to claim 1 [any preceding claim], wherein the plates are affixed to the fibrous core by means of a braze.

6. (Amended) A sandwich material according to claim 1 [any of claims 1 to 4], wherein the plates are affixed to the fibrous core by means of an adhesive.

7. (Amended) A sandwich material according to claim 1 [any preceding claim], wherein the fibres in the core are randomly orient[at]ed.

8. (Amended) A sandwich material according to claim 1 [any preceding claim], wherein  $\theta$  is less than  $60^\circ$ .

9. (Amended) A sandwich material according to claim 1 [any preceding claim], wherein the average diameter of the fibres is less than  $500\ \mu\text{m}$ .

10. (Amended) A sandwich material according to claim 1 [any preceding claim], wherein the total thickness of the material is 0.5mm - 1 cm.

11. (Amended) A sandwich material according to claim 1 [any preceding claim], wherein the fibres occupy 5-50 volume% of the core.

13. (Amended) A sandwich material according to claim 1 [any preceding claim], wherein the core additionally comprises non-metallic fibres.

14. (Amended) A sandwich material according to claim 1 [any preceding claim], wherein the fibrous core additionally comprises a polymer matrix.

15. (Amended) A process for the preparation of a sandwich material as defined in claim 1 [any of claims 1 to 14], comprising the step of affixing two metal plates to either side of a fibrous core.

16. (Amended) A welded material comprising a sandwich material as defined in claim 1 [any of claims 1 to 14] welded to a substrate.

17. (Amended) A vehicle part comprising a sandwich material as defined in claim 1 [any of claims 1 to 14].

18. (Amended) A vehicle part according to claim 17, which is selected from the group consisting of spoilers, panels and roofs.

19. (Amended) A vehicle comprising a vehicle part as defined in claim 17 [or claim 18].